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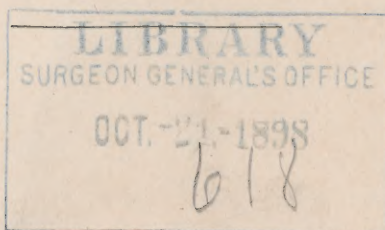
RETROPERITONEAL AND PERIRENAL

LIPOMATA

BY

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ON RETROPERITONEAL AND PERIRENAL LIPOMATA.

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The fat which is normally present around the kidney is liable as is well known to great overgrowth when those organs are diseased, as, for instance, in cases of hydronephrosis, of renal calculus and in many forms of chronic renal disturbance; more especially when the organ has undergone atrophic change is this overgrowth apt to present itself and under these conditions it would seem to have originated as a compensatory development. To this form of hyperplasia Virchow has called special attention. There is however a condition of excessive hyperplasia leading to the development of enormous neoplasms concerning which, so far as I can find out, Virchow makes no mention in his great work on tumours; a form in which the kidneys primarily would seem to be unaffected and in which the development of new fatty tissue is so enormous that growths from 40 to 60 lbs. in weight develop in the course of a few months or, more frequently, of from one to three years.

That Virchow should make no mention of these or of retro-peritoneal lipomata in general is evidence of their rarity, indeed after a careful study of the literature of the subject I have been unable to collect descriptions either complete or partial of more than about ~~twenty~~⁴² ~~four~~ cases; nor again have I come across any general article on the subject in our language. Nevertheless where the condition is present the clinical histories and the appearances found at the autopsy present so uniform a character and one so clearly marked off in many respects from other abdominal overgrowths that it is well worth while to collate what has been written upon the subject and to indicate the special points which characterise this form of tumour. My attention has been more especially called to the subject from the fact that within a few weeks two very well marked cases of this condition came under my notice. For the history of one of these cases together with the tumour I am indebted to Dr. Hanna, of Perth, Ont.; for the history and notes in connection with the other I have to express my sincere gratitude to Dr. Billings, Dr. Lamb, and the authorities of the Army Medical Museum at Washington. This last case I am informed has never been fully recorded and is of especial interest to me in that in almost every point it is identical with the former.

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It will be well before discussing the subject as a whole to give as briefly and as clearly as possible the facts in connection with these two cases.

Dr. Hanna's patient was John McK., aged 45 years at the time of death, by trade a harness maker. His mother had died of cancer at the age of 50. The father was still alive in 1893, aged 75, a brother and a sister were living and healthy. He had been strong and in excellent health until January, 1892, when he noticed that he was growing rather stout in the abdomen, while at the same time other parts of the body were becoming emaciated. There were no other symptoms: he ate well, slept well and felt well, and not until March of that year did he consider his condition sufficiently unsatisfactory to make it necessary for him to consult his local physician, who prescribed diuretics. The abdominal swelling continued to increase steadily and with it the emaciation, so that in April he came to Dr. Hanna who found the general condition of the patient good in every particular save for the presence of a large tense abdomen revealing fluctuation from side to side, more enlarged to the left; the girth at the level of the umbilicus was 37 inches. Aspiration yielded not a drop of fluid, hence a diagnosis of abdominal tumour was made and the patient was persuaded to enter the Montreal General Hospital. There Dr. Shepherd (to whom I am indebted for the accompanying illustration) made an exploratory incision on May 2nd, 1892, and found a solid uniform growth occupying the whole abdominal cavity. The relations of the tumour were found to be such that it was decided not to venture upon removal. The patient recovered well from the operation and in a fortnight returned home. From the date of his return until his death on February 9th, 1893, Dr. Hanna saw him at intervals of a fortnight. The course was one of continual growth of the tumour and steady emaciation of body, without throughout a single moment of pain or failure of appetite; the bowels and kidneys never failed to perform their functions. In October the measurement at the level of the umbilicus had increased to 47 inches, and in the middle of this month his physician noticed an apparent softening about the size of a saucer in the umbilical region, aspirated and drew off nine pints of sweet pus. From this date aspiration was practised every week or ten days, and in all close upon 60 pints were removed. Six weeks before death the patient presented slight signs of septicaemia and from this time onwards the pus aspirated was extremely offensive, while towards the end slight anasarca of the legs up to the knees manifested itself. The patient became weaker and weaker, respiration was impeded and he died on February 9th, 1893. To the

very end there was absence of pain and of any disturbance in the bowels or kidneys.

The necropsy on the following day revealed no disturbance of other regions, save great emaciation of face, extremities and chest and slight œdema of the lower lobes of the lungs. Upon opening the abdomen the bowels were found to be behind and to the right side of the tumour, with the exception of the descending colon which was stretched over the growth and which during life could be felt passing across towards the right side and the front of the tumour. This was covered by the expanded mesentery and peritoneum. There were a few slight attachments which were readily removed by the finger, and the tumour came away readily. With it came the left kidney and the spleen. The former was firmly adherent to and, in fact, imbedded in the growth, its lower extremity was atrophied by pressure and flattened, the ureter passed down along the back of the tumour to the bladder and was pervious; the spleen was partially imbedded in the tumour but not deeply, and it came away with comparative ease; the right kidney was healthy and unaffected: the liver had been pressed upwards and its measurement from above downwards was diminished. On section it presented the normal appearance. There was a loose adhesion of the pancreas to the growth.

The tumour when it reached me the next morning weighed 41 lbs., and that, after three pints or more of pus had been removed. Taking this into account together with the loss of fluid during transit, 44 or 45 lbs. would seem to have been the weight at the time of the necropsy. The kidney and a portion of the colon were still adherent, and the tumour presented a coarsely lobate appearance, the lobes being bound down and covered by several irregular and thin layers of fibrous tissue. Upon cutting into the tumour well-marked bands of connective tissue could be seen passing between the large lobes, which varied in size from that of a man's fist to that of a man's head; upon the upper and anterior surface were three or four lenticular lobes that appeared to be composed exclusively of fatty tissue and were completely cut off from the main mass by loose connective tissue; these in fact were capable of being moved to a slight extent over the surface of the rest of the growth. Within the lower and anterior portion of the tumour was a large cavity of which the front wall had fallen in. This still contained grayish-green pus and the tissue around was extensively broken down, of greenish colour, with here and there thrombosed vessels and patches of old hæmorrhage which had assumed a dark green tinge.

Sections from various regions showed that the tumour was in the

main composed of pure and typical fatty tissue. In many parts this was undergoing a mucoid change or degeneration; in some the fat had almost wholly disappeared or had more properly degenerated, the characteristic myxomatous cells being very well seen. On the surface where the growth appeared to be advancing, this appearance was wanting, hence I am inclined to regard the more mucoid regions as tending to be degenerated, and not, as one author to be presently cited would hold it to be, the primary condition. Well-marked connective tissue as a rule separated the fatty lobes, but in one region near the lower end of the tumour and not far removed from the abscess cavity an oat-shaped cell growth replaced well-formed connective tissue, so that sections from this area presented a markedly sarcomatous appearance. There was no cartilage or deposit of calcareous salts or osseous development present.

Here, then we are dealing with a huge retroperitoneal lipoma, which by some would, from its tendency to undergo mucoid degeneration be termed a lipoma myxomatodes, and which in parts would almost seem to have taken on more marked sarcomatous characteristics. I am inclined to consider, however, that the rapid cell growth referred to was largely due to the neighbouring inflammatory disturbance, although in some parts of the sections the sarcomatous appearance was so typical that the case may well be cited as one of chronic inflammation in a loose connective tissue resulting in overgrowth of embryonic tissue, that is to say leading to malignancy.

The Army Medical Museum at Washington received the material connected with the second case from Dr. W. W. Brown, of Brooklyn, who supplied the following details:

J. McN., aged 60, had been a temperate hard working man enjoying always good health. A tumour was first noticed in February, 1869, and then was about the size and shape of an ostrich egg, somewhat movable and painless. During the next two years it increased steadily in size, without, however, affecting the general health of the patient. Although latterly the liver became compressed upwards by the enormous size of the tumour, there was no dyspnoea. As an indication of his general condition it may be added that the patient was a regular attendant at church up to a fortnight before his death. Three weeks before death he walked a long distance to attend the funeral of a friend; the day was stormy and he caught a cold, which increasing in severity led to death from exhaustion in February, 1871.

The autopsy, performed by Dr. G. E. Smith, of Brooklyn, revealed

the following conditions: the anterior abdominal wall was infiltrated with and distended by serum, the muscles being atrophied. A tumour weighing 41.5 lbs., of irregular flattened shape was everywhere adherent to the wall. The liver and intestines were pushed well upwards diminishing the thoracic cavity. The stomach was compressed and adherent to the diaphragm by old adhesions, the right kidney contained one large and some smaller cysts, the left kidney was atrophied and flattened by the tumour to which it was adherent and in which it was partly imbedded. It contained a cyst the size of a walnut upon its convex border. These kidneys together with portions of the tumour and the plaster cast form specimens 8533 to 8536 in the Army Medical Museum. The casts shows above the descending colon passed over the growth.

Examined microscopically the tumour was found to consist "largely of adipose tissue in a voluminous stroma of embryonic connective tissue with abundant nuclei between the fat cells."

It is seen that both these cases present a similar history, of long duration and slow growth, accompanied by very little general disturbance. There is the same history of lack of pain and of disturbance of the general functions of the body till towards the last few days of life. Along with this lack of active disturbance of functions it is noticeable that both patients became extremely emaciated. In both the tumour consists of fatty tissue in which is imbedded a kidney showing little change beyond what would seem to be mainly the results of pressure of the tumour, both are retro-peritoneal and over both there passes a length of the large intestine.

Enormous retroperitoneal lipomata, while not unrecorded in literature would not seem to be very frequent. As will be seen from the accompanying chart, I have been able to meet with altogether forty-two recorded cases including my own here published and excluding one or two mere statements of observed retroperitoneal lipomata. description of these is often imperfect in one or more important particulars, nevertheless taken all-in-all, there is a remarkable similarity in the histories given.

The greatest number have been recorded in France (9); England Germany and Scandinavia have each supplied half a dozen; America five; Switzerland, four; Austria three; Belgium two. The fullest studies made so far have been by Terrillon in France who collected fifteen cases, and by Josephson and Vestberg in Sweden, who in a very full paper have analysed thirty cases (including Terrillon's fifteen. Salzer of Vienna has contributed a thoughtful article on the

subject and is the only one, I believe, who has drawn especial attention to the perirenal development of many of these growths.

For the benefit of future workers upon this subject I have tabulated all the cases of retroperitoneal lipoma that I have been able to find recorded, dividing them into those which appear to me to have been definitely of perirenal origin, those in which the origin is doubtful, those which appear to have developed either in the mesentery or the radix mesenterii, and those which judging from the descriptions given seem to have developed in the lower half of the abdomen.

The classification is not wholly satisfactory, for in too many instances only the vaguest idea seems to have ruled as to the primary seat of origin. Nevertheless the attempt to make such a classification may draw the attention of future observers to the need for more exact description of the position of the tumours when first recognised, and the relationship of parts found at the operation or autopsy. It is clear that all these huge lipomata do not have a like origin; a large number undoubtedly originate in the neighbourhood of one or other kidney, others undoubtedly originate lower down; but it is not a little curious that where observers have recorded more than one case, those cases are with rare exceptions all of the same category. Salzer's three cases and my two are all perirenal. Péan's are all mesenteric; Homans does not venture to ascribe a starting point for his cases but they present parallel features. This may, of course, be but a coincidence. If it be not, then probably all are recording like conditions with different preconceived notions.

Nor again can I feel satisfied that every important fact in connection with each case is contained in these tables. I have recorded all those which are commonest in connection with this form of growth, together with important points of departure from the usual history, and again the results of operative interference. Most of the cases, I am glad to note, I have found on the shelves of our medical library at McGill; for the more out-of-the-way articles in French and Swedish literature I have had recourse to the College of Surgeons' Library in London and the Surgeon General's Library at Washington. I would especially acknowledge my indebtedness to this last great library. In the bibliography I note those cases not consulted at first hand.

It will be seen that about one third of the cases may reasonably be described as having a perirenal origin and that very possibly some of those classed as doubtful belong to the same category. The largest collection of retroperitoneal fat occurs physiologically around the kidney and here, consequently, is a most likely place for retroperi-

toneal lipomata to originate. On the other hand it must be called to mind that fatty tumours do not always originate in those sites where fat is normally present in large quantities: for example they are common over the shoulders and rare in the panniculus, and I have come across no example of abdominal lipomata developing in the essentially fatty appendices epiploicæ. I may add that I have not in my tables included cases of lipomata of the omentum (Meredith² and Roberts³) or of the gastro-hepatic omentum or ligament, (Peyrot⁴) for these cannot be considered retroperitoneal and are distinguished from the main mass of retroperitoneal tumours by not being crossed anteriorly by any portion of the intestine.

Analyzing the cases here collected, it will be seen that the condition is more frequent in the female than in the male, in the proportion of 25 to 16. Where the relationship to the kidney is given, the growth is found about as frequently arising from the left side as from the right. (Right 13, left 11.) The neoplasm is almost essentially a development of middle and later life, the statistics being as follows:

Below 30 years.....	2 cases.
Above 30 but below 40.....	8 "
" 40 " 50.....	9 "
" 50 " 60.....	4 "
" 60 " 70.....	7 "
" 70.....	1 "
Not stated.....	11 "

A very exceptional case is that of Lauwers, in which the tumour was recognized 14 days after birth, and, growing steadily, attained such a size and led to so much emaciation, that when removed at the age of seven, it weighed 6 lbs., or almost a third of the total weight of the child after its removal (20 lbs.).

The rate of growth is very slow. Upon an average between two and three years elapsed between the first recognition of the tumour and removal, or death of the patient. Three cases were observed for 4 years; Bruntzel's case for 5 or 8; Lauwers and Lundin and Hedbom's for 7; Terrier and Guillemin's for 7 if not 12 years. In other words, the growth for long causes so little general disturbance that the patient does not readily submit to operation until the tumour has

¹ With regard to the Swedish cases let me say that I would ask future writers on this subject conversant with the language to verify my epitomes. Where I have epitomised Swedish references to French and other cases and have later abstracted the original articles I have been surprised at the correctness of my epitomes; for my translations have been conducted minus a dictionary, by the light of elementary comparative philology and vague memories of consultations of my Baedeker during a few weeks spent many years ago in Scandinavia,—mainly in Norway and Denmark.

² Meredith, *Lancet*.

³ Roberts, *Medical News*.

⁴ Peyrot, *Bulletins et Memoires de la Soc. de Chirug. de Paris*.

assumed enormous proportions. The size attained by the growth is shown by the fact that the majority are recorded as being more than 20 lbs. (English) in weight ; one (Waldeyer) was 63 lbs. ; five above 50 lbs ; four above 40 lbs. ; six between 30 and 40 lbs.

How little general disturbance is caused will be seen by following the epitome given of the general symptoms. In case after case there is the record of absence of pain and absence of any marked disturbance of the intestinal and urinary functions. Only towards the end may there be pain passing down one or both extremities with oedema of the legs. The common history of all the cases is the extreme emaciation that may develop, coupled with dyspnoea.

But in about fifteen per cent. of the cases there is some history of more extensive disturbance. In Madelung's there was a tendency to vomit, in Péan's third case "functional troubles" of the abdominal and thoracic viscera, in one of Roux's, periodic crises of intestinal obstruction, in Josephson and Vestberg's slight digestive disturbances, in Belkowsky's dysuria, in Cooper Foster's frequent micturition, and in Lundin and Hedbom's irritability with flatulence and colic. In only one (Pickering Pick,) is there the history of general pain and severe abdominal disturbance.

It is interesting to note how frequently the definite presence of fluctuation has led to erroneous diagnosis. Even when the tumour has been exposed, as in Bruntzel's case, trocars have been inserted in the expectation that fluid could be drawn off. Nothing could better emphasise the fluid nature of fat in the living body than the frequent history of false diagnosis of ascites, multilocular ovarian cyst, or, as in two cases, of echinococcus cysts. Where there is a fluctuating tumour of the abdomen from which, upon repeated puncture, no fluid is obtainable, it is clear that the existence of a lipoma (or a myxoma) must be seriously considered. One such case occurred recently in Dr. Stewart's wards at the Royal Victoria Hospital. There had been slow progressive, painless and somewhat unilateral development of the abdominal tumour, with accompanying progressive emaciation and dyspnoea. A length of the intestine could be felt passing across the tumour. Unfortunately the patient, a young Jewess, would not be operated upon and her friends removed her to die at home. The only slight contra-indication in this case was the age ; if I remember aright, she was scarcely twenty years old. The apparent development of secondary growths elsewhere was not against the diagnosis, although it was against operation, for we possess other instances of these large lipomata progressing to a sarcomatous termination, (*e.g.* Waldeyer's and my first case).

That a length of the intestine should pass in front of the growth is readily explained. When the growth develops in the mesentery or behind the colon, it must be covered in front by the intestine with, on either side of it, the separated laminæ of the mesenteric peritoneum. That in a very large number of cases the portion of intestine crossing in front is recognized as being portion of either the ascending or descending colon, supports the view that the lipoma in these cases has developed in the neighbourhood of the kidney. In Waldeyer's case the transverse colon passed across the tumour, and this fact led to the opinion that the growth originated in the radix mesenterii, but at the same time the right kidney was involved in the mass, hence this might be included among the perirenal cases. For while a growth developing evenly around the kidney must inevitably push forward the colon (ascending or descending), these growths are not necessarily regular, and we have examples (Spencer Wells and Bruntzel) in which the colon has been pushed to one side. It is thus possible that an irregular growth originating around the kidney should be crossed by portions of transverse rather than by the other portions of the colon. But I would not appear to urge too strongly this contention that, "whenever the kidney is involved, there the growth has originated in its neighbourhood. My own case shows very clearly that these large tumours are composed of numerous distinct lobes, some of which upon the surface may be separate and freely movable over the main mass. These, it is true, were in my case small and from the absence of any degenerative changes would appear to have been more recent than the other portions of the growth. Still their existence indicates that there may be a development of multiple retroperitoneal lipomata which eventually fuse, and Dreschfeld's case is strongly in support of this view, as are also those of Balkowsky, Schiller and Spencer Wells.

One symptom mentioned in a large number of the reports needs but to be referred to in passing, namely, the eventual œdema of the lower extremities, due to the venous obstruction in the abdomen. It is noted more than once that this did not show itself coincidently in both legs, but appeared first in the side upon which the tumour originated.

Passing now to the histology of the tumours, the divergent descriptions are easily reconciled when we remember that every member of the group of connective tissue tumours may pass into or show areas of conversion into other members of the group. There are instances of enormous perirenal fibromata (Lathuraz,¹ D'Antona,² Bauby and

¹ Lathuraz, *Lyon Méd.*, 1895, p. 329 (fibroma 40 lbs. ? mesenteric).

² D'Antona, *Atti. della R. Accad. Med. Chir. di Napoli*, 1895, p. 142 (perirenal fibrosarcoma).

Daunic¹), and myxomata (Elben,² Gould,³ Witzel,⁴ and (?) Guyot⁵) while tumours mainly fatty may show more or less extensive conversion into fibroid, cartilaginous, osteoid, mucoid or embryonic (sarcomatous) tissue. We have thus cases of pure lipoma, fibro-lipoma, fibro-chondro-osteo-lipomata, lipoma myxomatodes, and lipo-sarcomata. On the whole when we are dealing with such large slow-growing tissues one must hold the view that originally they were overgrowths of highly developed tissue, and that where upon extirpation more embryonic tissue is found this is of relatively recent appearance. Thus I cannot agree with Wigglesworth who regarded his case as one of primary myxoma which had undergone later fatty change.

Not only may there be deposits of calcareous salts and *osteoid* appearances in older and degenerated portions of the growth (Péan, Alsberg,) but as Dreschfeld first pointed out there may be true *osseous* development. In Josephson and Vestberg's first case similar true osteomatous areas were recognized. In this same case, as in Waldeyer's and Dr. Hanna's cases, were also evidences of sarcomatous development, but in one of these only (Waldeyer's) were secondary growths found elsewhere. How benign are these growths is further shown by the fact that in only one instance (Tillmann) was there recurrence (? sarcomatous) after removal, and that in another (Roux) the woman gave birth to a healthy child 6 months after its removal.

On the whole the tendency is for these massive tumours to be of the nature of myxolipoma, or as some term it, of lipoma myxomatodes. One of the fullest descriptions of such a growth is by Bruntzel, under the misleading title of fibroma of the capsule of the kidney. There can be no doubt, however, in reading Dr. Bruntzel's very clear description of his case and the naked-eye appearance of the tumour that he was really dealing with a growth of this nature: there was the same gradual though very slow enlargement of the abdomen and progressive emaciation, unaccompanied for years by any disturbance of the general health, the same perfect fluctuation leading to numerous fruitless attempts to tap the enlargement. Even when the tumour was exposed upon the operating table, the surgeon was so deceived by its appearance and fluctuation that he employed a trocar in the hope of lessening its bulk prior to removal, a feature that speaks powerfully against its having been mainly fibromatous. And indeed

¹ Bauby & Daunic, *Le Midi. Méd.*, II., 1893, p. 532, ('pararenal' fibro-myoma).

² Elben, *Wurttemb. Med. Corresp. bl.*, 1880, No. 14 (hæmorrhagic perirenal myxoma).

³ Gould, *Lancet*, 1888, II., p. 518 (hæmorrhagic "perirenal myxoma").

⁴ Witzel, *D. Zeitschr. f. Chirurg.*, XXIV., 1886, p. 326.

⁵ Guyot, *Gaz. de Hôpt.*, 1870, p. 369 (myxo-chondro-fibroma).

the description given in the article is that the tumour was composed of a number of masses from the size of a child's head to that of a man's head, in the fibrous tissue of which lay large quantities of loose fatty tissue ; at the back, in a kind of hilum, lay partially imbedded the left kidney. Clearly from this description the growth was a lipoma myxomatodes identical with my own case.

Passing now to the results of operative interference the results obtained were perhaps only what might be expected to follow the removal of enormous masses filling the greater portion of the abdomen and composed of a tissue which, contrary to what is frequently taught, has a peculiarly rich vascular supply. Of the 42 cases, in 26 the tumour was removed, wholly or almost wholly. In twelve cases the operation was successful, or 46.1 per cent. (Alsberg, Buckner, Bruntzel, Belkowsky, Lundin and Hedbom, Lauwers, Madelung, Monod, Péan, Pernice, Roux and Tillman) though as above stated in Tillman's there was recurrence. In general there is little sign of surrounding inflammatory disturbance and the layer of peritoneum covering the growth is described as being smooth and glistening. In general also the huge mass peels out with fair ease from its surroundings, though there are often accessory fatty lobules that have to be removed after the evisceration of the main mass.

The greatest danger lies in the fact that in its growth forward the tumour carries before it the portion of the intestine and of necessity the mesenteric vessels supplying this. As a consequence, unless great care be taken in the removal, the blood supply of this portion of the intestine is cut off, and gangrene or necrotic inflammation ensues. This seems to have been the history in most of the fatal cases and in some of those which were successful (Madelung, Alsberg, Bruntzel, Lundin and Hedbom).

There are thus it would seem two courses to be recommended to the surgeon operating in such cases. Whenever possible the tumour should be approached by a lateral or lumbar and not by any anterior incision, for by this means it may be removed without excessive injury to the covering peritoneum and the vascular supply of the gut which crosses it. Failing the adoption of this course there must be free resection of this portion of intestine. Alsberg removed seven inches of the transverse colon, Madelung, eight inches of the small intestine which had been injured, Lundin eight inches of the transverse colon with repeated subsequent enterotomies, while Roux removed four feet of the small intestine.

Exploratory incision without removal seems in one case (Terrier

and Guillemain) to have led to arrest of growth and recovery of health during the next three years.

To recapitulate—a retroperitoneal lipoma may be suspected where there is a very slowly growing tumour situated most often more to one side than the other, accompanied by little disturbance of general health save progressive emaciation and eventual dyspnœa; which is crossed by a length of intestine, and gives a sense of fluctuation; from which, further, repeated puncture fails to draw any fluid. The sense of fluctuation distinguishes this from a fibroma, the rate of growth from a sarcoma and to some extent from a myxoma. The diagnosis from this latter, rarer condition is difficult. The results of puncture exclude ovarian or other cystic formations and ascites.

Removal is possible even when such a tumour has attained enormous dimensions. For the operation to be successful the main precaution to take is to see that the gut crossing the tumour is not deprived of its blood supply or if so deprived is freely removed, with resection.

BIBLIOGRAPHY.

- Alsberg—Deutsch Med. Wochenschr, 1887, p. 994.
 Belkowsky—Rev. Med. de la Suisse Romande, 1893, p. 431, (abstract in Josephson and Vestberg).
 Buckner—Am. J. of Med. Sc., XXIV., 1852, p. 358.
 Broca—Bull. Soc. d'anat, 1850, p. 137.
 Bruntzel—Berlin. Klin. Wochenschr. Dec. 4, 1892, p. 49.
 Cauvy—Montpellier Médical, XXXII., 1874, p. 97 (abstract in Terrillon).
 Cooper Foster—Path. Trans., XIX., 1868, p. 246.
 Dreschfeld—Path. Trans., XXXI., 1880, p. 287.
 Homans—Lancet, 1883, I., p. 449.
 Josephson and Vestberg—Hygiea (Stockholm), LVII., 1895, p. 396.
 Kümmel—Deutsch. Med. Wochenschr, 1886, p. 903.
 Lauwers—Bull. de l'acad de Méd. Belge., 1891, p. 311 (abstr. in Josephson and Vestberg).
 Lundin and Hedbom—Upsala lakäre forenings för händl., XXX., 1895; No. 2 abstr. in Universal Med. JI., Phila., June, 1895.
 Madelung—Berlin Klin. Wochenschr, 1881, pp. 75 and 93.
 Monod. Rev. de Chirurg. XII., 1892, p. 1047.
 Morgagni—De sedibus et causis morborum. Epist. 39, 5 (note in Madelung, transl. in J. and V.)
 Moynier—Ctes. rend. d. l. Soc. de Biol., ser. I., tome II., p. 139.
 Péan—Diagnostic et traitement des tumeurs de l'abdomen, Paris, 1881, pp. 1129 and 1131; Bull. de Therap., Nov. 15, 1885, p. 420; and Gaz. des Hôpit. No. 38, 1886.
 Pernice—D. Med. Wochenschr, 1884, p. 850.
 Pick—Path. Trans., XX, 1869, p. 337.
 Pollock—Half-yearly abstract of Med. Sciences, XVI., 1852, p. 357.
 Roux (Lausanne)—Semaine Med., 1893, p. 159.
 Salzer—Wiener Klin. Wochenschr, 1888, pp. 199, 221 and 238.

- Schiller v. Josephson and Vestberg, p. 470.
 Spencer Wells—Path. Trans. XIX., 1868, p. 243.
 Terrier and Guillemain—Rev. de Chirurg., 1892, p. 747.
 Terrillon—Arch. Génér. de Médecine, 1886, p. 257.
 Thiriar (Brussels) Congrès Franc. de Chirurg., quoted by Bauby and Daunic, Le
 Midi Méd. II., 1893, p. 542.
 Tillman—Hygiea, 1891, I., s. 277 (abstr. in J. and V.)
 Waldeyer and Freund Virch. Arch., XXXII, 1865, p. 543.
 Wigglesworth—Lancet, 1883, I., p. 1121.

TABLE I.—RETROPERITONEAL LIPOMATA.—CASES

AUTHORITY.	AGE AND SEX.	DURATION OF GROWTH.	GENERAL SYMPTOMS.	FLUCTUATION.	RELATIONSHIP OF COLON.
1. MORGAGNI..... 1760.	F. 60	Several months.	Not given.	Not stated.	Not stated.
2. MOYNIER... .. 1850.	F. 47	Not known.	Suffered from cancer of uterus ending in peritonitis.	Not stated.	Descend'g colon in front.
3. SPENCER WELLS.. 1868.	F. 43	Several years.	Confined to room for last year.	Not stated.	Ascend'g colon passed to left.
4. BRUNTZEL..... 1882.	F. 33	5 or 8 years.	Good health for several years ; progressive emaciation ; latterly pains down left lower limb.	Yes.	Descend'g colon adherent to left side of growth anteriorly.
5. WIGGLESWORTH... 1883.	F. 43	2 years.	Emaciation ; dyspnoea.	Yes.	Not stated.
6. KUMMELL..... 1886.	M. 38	3 years.	Rapid growth during last few months ; no symptoms mentioned.	Yes.	Colon crossed front of tumour.
7. SALZER (1)..... 1888. Kundrat's case.	M. Mid. Age.	Very slowly growing.	Not given.	Yes.	Descend'g colon in front.
8. SALZER (2)..... Kolisko's case.	F. 53	Not stated.	Not given.	No.	Not stated.
9. SALZER (3)..... Billroth's case.	M. 40	2 years.	Growth progressive, painless ; good appetite ; regular motions ; no vomiting or icterus ; great emaciation ; œdema of lower limbs for last year.	Yes.	Descend'g colon in front.
10. THIRIAR..... 1889.	F. 63	—	—	—	—
11. TILLMAN..... 1891.	F. 28	1 year.	Growth more rapid during later months, with dysuria.	Yes.	Descend'g colon and sigmoid in front.
12. MONOD..... 1892.	M. —	Not stated.	Not stated.	Not stated.	Not stated.
13. AUTHOR..... Dr. Hanna's case.	M. 45	13 months.	Growth progressive and painless ; appetite good ; no digestive troubles ; suppuration of part of growth ; towards end slight œdema of legs.	Yes.	Descend'g colon in groove pass'g across front.
14. AUTHOR..... Army Museum case.	M. 60	2 years.	Steady painless growth ; no disturbance of general functions.	Not stated.	Not stated clearly.

WHICH APPEAR TO HAVE BEEN PERIRENAL IN ORIGIN.

TERMINATION.	RELATIONSHIP TO KIDNEY.	NATURE OF TUMOUR.	WEIGHT.	REMARKS.
No operation.	In connection with capsule of right kidney.	Some parts firmer than others; appeared like fat.	—	"Ut steatomatis refferret materiam."
—	Left kidney behind and to inner side of tumour.	Pure Lipoma; very vascular.	315 grms.	Tumour only found at autopsy, 2 to 3 times size of kidney; soft and fluctuating; capsule of kidney continued on to tumour
Laparotomy; peritonitis; d. in 48 hours.	Right kidney involved in mass.	Lipoma.	—	Even after removal of main mass 12 to 20 lbs. of the growth were removed at autopsy.
Laparotomy; fistula from descending colon; recovery.	Left kidney adherent to border of tumour in a kind of hilum.	Fibro-lipoma oedematousum.	37½ lbs. (German)	Puncture attempted several times; states origin of growth from capsule: gives good diagram, but calls growth a "fibroma."
Death from respiratory troubles.	R. kidney buried 1½ inches in growth.	Myxo-lipoma.	41½ lbs.	Describes case as a myxoma which had undergone fatty degeneration.
Laparotomy; d. 2 days later.	"Started from left kidney."	Lipoma, not fully described.	Enormous.	Puncture negative; diagnosis echinococcus cysts; spleen also adherent.
Laparotomy: d. shortly after.	Left kidney completely imbedded in upper part of tumour.	Myxo-lipoma.	Size of man's head.	Echinococcus diagnosed.
Laparotomy; col-lapse.	Right kidney carried four fingers breadth forward by growth.	Fibro-lipoma myxomatodes.	Size of man's head.	Solid ovarian tumour diagnosed.
Laparotomy; col-lapse.	Left kidney imbedded in the growth.	Myxo-lipoma.	27,400 grms.	Puncture negative; gives good diagram; points out perirenal origin.
—	Assoc'ted with capsule of left kidney.	Fibro-lipoma.	11 kilos.	Diagnosed as multilocular cyst of ovary.
Laparotomy; recovery: recurrence.	Left kidney removed with tumour.	In part lipoma, in part myxoma fibromatosum.	10 kilo (with kidney).	Diagnosed ovarian cyst; recurrence after 1 year; inoperable.
Laparotomy; recovery.	Degenerated kidney, side not stated, thought to be within tumour.	Lipoma.	6,600 grms.	No signs of kidney, its vessels, or ureter seen during the operation; in middle of tumour a mass of fatty degenerated tissue shape of kidney (?)
Septicæmia and dyspnœa; death.	Left kidney imbedded in hinder surface and in part atrophied.	Myxo-lipoma becoming sarcomatous in one area.	44 lbs.	Puncture negative; diagnosis retroperitoneal tumour confirmed by exploratory laparotomy.
Caught cold; d. from exhaustion.	Left kidney imbedded in hinder surface and atrophied.	Myxo-lipoma.	41½ lbs.	—

TABLE II.—CASES OF

AUTHORITY.	SEX AND AGE.	DURATION OF GROWTH.	GENERAL SYMPTOMS.	FLUCTUATION.	RELATIONSHIP OF COLON.
15. WALDEYER AND FREUND. 1865.	F. 30	Not stated	Not given.	Not stated.	Transv. colon passed across
16. PICKERING PICK. 1869.	M. 36	11 months	Rapid growth; great emaciation; malignant cachexia; vomiting and great pain.	Not stated.	Asc'g colon in front.
17. CAUVY..... 1874.	M. 54	4 years	No pain; great emaciation; dyspnœa; œdema of legs, specially right.	Yes.	Not stated.
18. DRESCHFELD..... 1880.	F. 49	3 years	Good health; gradual painless growth; emaciation; anorexia during last year.	No.	Main mass at back of abdomen.
19. MADELUNG..... 1881.	F. 32	2 years (?)	Abdominal disturbance for 2 yrs.; tumour noticed for 6 mos. before operation; no pain; tendency to vomit.	Yes.	Jejunum in intimate connection.
20. HOMANS..... 1883. 1st case.	M. 39	4 years	Good health; progressive growth, with emaciation.	Yes.	Asc. colon adherent cross'd transversely.
21. HOMANS..... 2nd case.	F. 60	1 year +	Emaciation and dyspnœa.	Yes.	Asc. colon cross'd in front
22. TERRILLON..... 1886.	M. 35	3 years +	Abdominal pain; no urinary and little intestinal disturbance; progressive emaciation.	Yes.	Cæcum and asc. colon in front
23. LAUWERS..... 1891.	Boy 7	7 years	Noticed when 14 days old; slow growth right sided; often punctured without result; great emaciation.	—	Asc. colon along left edge.
24. TERRIER AND GUELLEMAIN... 1892. Case 2.	F. 55	2 years	Gradual growth in rt.; hypochondrium.	Yes.	—
25. SCHILLER..... 1894.	M. 40	1 year +	Gradual growth; little disturbance; constipation(?)	Not stated.	Desc. colon push'd toward mid-line.
26. JOSEPHSON AND VESTBERG. 1895. Case 2,	M. 70	15 months	Gradual growth; slight digestive disturbances; great emaciation, etc.; œdema of legs and scrotum.	—	Colon and small intestines adherent to growth.
27. LUNDIN AND HEDBOM... 1895.	M. 52	7 years	Painless; diminished appetite; irritability; flatulence, colic and dyspnœa; decrease in urine.	—	Asc. colon hepatic flex. and transv. colon adherent.

DOUBTFUL ORIGIN.

TERMINATION.	RELATIONSHIP TO KIDNEY.	NATURE OF TUMOUR.	WEIGHT.	REMARKS.
—	R. kidney imbedd'd in mass.	Myxo-lipoma, with sarcoma in parts.	63 lbs. (German)	Secondary growths in liver (sarcomatous); supposed to have developed in radix mesenterii, but right kidney involved.
Sank marasmus. (?)	Not stated.	Pure lipoma.	29½ lbs.	Said to have been situated more to the right than left.
Septicæmia.	Not known.	Lipoma.	—	Autopsy not obtainable; tumour of great size exposed and found retroperitoneal intra vitam.
Laparotomy; death 5 days later.	L. kidney pushed to right border of tumour.	Lobulated fibro-lipomata, with osseous nodules	Not ascertained.	Lobules on both sides of independent origin; part removed at p.m. weighed 12 lbs. and extended down pelvis on left side.
Laparotomy; resection of 8 cm. of gut; recovery.	—	Lipoma, cedematous myxomatodes.	—	Puncture without result; diagnosis ovarian cyst; extended on both sides; intestines behind; probably from mesentery of small intestines.
Laparotomy; death.	Not stated.	Myxo-lipoma.	57 lbs.	Puncture ineffectual; kidneys stated to have been unaffected; growth on right side mainly.
Laparotomy; death.	Not stated.	Pure lipoma.	35 lbs.	
Laparotomy; D. 32nd day; diarrhoea.	Not stated.	Myxo-lipoma.	57 lbs. (French)	Both kidneys said to have been healthy; growth mainly on right side.
Laparotomy; recovery.	—	Lobulated lipoma with fibrous bands.	6 kilo.	Tumour nearly one-third weight of child.
Exploratory incision; arrest of growth.	Not known.	Enormous lobulated lipoma.	—	For three years after exploratory laparotomy patient's condition improved; arrest of growth; hold it to have developed in mesentery.
Laparotomy; D. 14th day; heart paralysis.	Not stated.	Lipomata.	11·3 kilo.	Multiple nodules, mainly retroperitoneal; some pedunculated; main mass to left.
Marasmus; death	Kidneys small; Lt. connected with tumour.	Myxo-lipoma, with sarcomatous and fibromatous areas.	10·3 kilo.	If I read the Swedish aright, the cæcum was over the front of the tumour, but the growth was median.
Laparotomy; recovery.	Not stated.	Lipoma.	37½ lbs. (Swedish)	Resected 20 cm. of transv. colon; gangrene supervened, successive enterotomies and recovery.

TABLE III.—CASES NOT OF PERIRENAL ORIGIN AND APPAR

AUTHORITY.	SEX AND AGE.	DURATION OF GROWTH.	GENERAL SYMPTOMS.	FLUCTUATION.	RELATIONSHIP OF COLON.
28. BUCKNER..... 1852.	F. 8-para.	3 years. +	Caused no marked trouble, gave birth to healthy child six months before operation.	Elastic.	———
29. PÉAN..... 1881. Case 1.	F. 60.	2 years.	Good health, progressive growth.	Semi-fluctuant.	———
30. PÉAN..... 1881. Case 2.	F. 62.	Not stated.	Great emaciation, no ascites.	Yes, in parts hard.	———
31. PÉAN..... 1885. Case 3.	F. 30.	1 year.	Bad health; functional troubles of principal viscera of abdomen and thorax.	Yes.	———
32. ALSBERG..... 1887.	F. 46.	3 years.	Painless; had grown rapidly of late, emaciation, weakness, dyspnœa, enlarged veins over abdomen.	Yes.	Covered in front by expanded upper lamina of Tr. meso-colon.
33. ROUX..... 1893. Case 2.	?	Not stated.	———	Not stated.	Not stated.
34. ROUX..... Case 3.	M. 41.	Not stated.	Periodiccrises of intestinal occlusion.	———	———
35. JOSEPHSON AND VESTBERG. 1895. Case 1.	F. 61.	3½ years.	No symptoms save great emaciation and increase of abdomen.	Yes.	Covered by rectum, sigmoid and descending colon.

TABLE IV.—CASES REGARDED AS GROWING FROM

36. BROCA..... 1850.	M. aged	Not stated.	Not stated.	Semi-fluctuant.	Sigmoid flexure lay over front.
37. POLLOCK..... 1852.	F.	Not known.	Not stated.	———	———
38. COOPER FOSTER.. 1868.	F. 63.	4 years.	General health unimpaired frequent desire to micturate and pass fæces, during last few months cedema of legs.	Yes.	Asc. colon in front.
39. PERNICE..... 1884.	F. 64.	6 years.	Steady growth, great emaciation, cedema.	Yes.	Adherent to appendix and cæcum.
40. TERRIER AND GUILLEMAIN 1892. Case 1.	F. 40.	7 or (?) 12 years.	Slow growth with emaciation, loss of strength.	Soft and yielding.	Cæcum and asc. colon over tumour.
41. ROUX..... 1893. Case 1.	F.	———	———	———	———
42. BELKOWSKY..... 1893.	F. 46.	2½ years.	Right-sided growth, dysuria. No other symptom.	———	Mass in meso-colon of sigmoid.

ENTLY DEVELOPING IN THE MESENTERY OR RADIX MESENTERII.

TERMINATION.	RELATIONSHIP TO KIDNEY.	NATURE OF TUMOUR.	WEIGHT.	REMARKS.
Laparotomy; recovery.	—	Apparently a fibro-lipoma.	Not given	Stated to be in mesentery between laminae of peritoneum.
Laparotomy; died 10th day, diarrhoea.	—	Lipoma.	12 kilo.	Stated to be behind mesentery.
Laparotomy; died 4th day, exhaustion.	—	Fibro-lipoma with osteoid and calcareous areas.	20 kilo.	Stated to be behind mesentery.
Laparotomy; recovery.	—	Lipoma.	25 kilo.	Diagnosed solid mesenteric tumour; fibrous pedicle to prevertebral periosteum; encephalic 3 months at operation, child born at term.
Laparotomy; recovery.	Portion of tumour in neighbourhood of the kidney left behind.	Lipoma, in parts myxo-lipoma, in parts calcified.	34 lbs. (German)	Tumour grew between the two kidneys, pushing transv. colon down. Resected 18 cm. of tr. colon.
Laparotomy; recovery.	—	Lipoma.	Not given	Situated in region of sigmoid; lipoma of meso-colon.
Laparotomy; recovery.	—	Lipoma.	—	Resected four feet of small intestine; stated to be mesenteric.
Laparotomy; paralysis of bowel, collapse 3rd day	—	Fibro-myxo-osteo-lipoma.	9 kilo.	Stated to have grown in mesentery of sigmoid flexure.

ILIAC FOSSÆ OR FROM BROAD LIGAMENT.

—	—	Lipoma with former fibro-lipomatous nodule.	About 15 kilo.	Died soon after admission to hospital before particulars could be obtained.
—	—	Simple fatty tumour.	—	Evidently small, found at autopsy in tissues of b'd ligament.
Apnoea.	—	Pure lipoma.	55 lbs.	Stated to have originated in right iliac region.
Laparotomy; recovery.	—	Pure lipoma.	15 kilo.	Diagnosis; ovarian cyst (?) from broad ligament; 6 intra-ligamentous cysts were removed at same time.
Laparotomy; died 8th day, intestinal occlusion.	—	Pure lipoma.	7.850 kilo.	Tapped without result; diagnosis, retroperitoneal lipoma, adherent at side to fossa iliaca; right ovary also adherent; tumour occupied $\frac{2}{3}$ abdomen.
—	—	Lipoma.	—	Stated to be growing in right iliac fossa, in association with a fibroma.
Laparotomy; recovery.	—	Lipomata with fibromata.	—	One growth in right iliac fossa (fibromatous); another in meso-colon of sigmoid flexure and extending up along left ureter (lipomatous).

